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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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|-----------------|-------------|----------------------|---------------------|------------------|

09/918,456

08/01/2001

Keiji Mabuchi

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01/11/2005

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WASHINGTON, DC 20036

EXAMINER

VILLECCO, JOHN M

ART UNIT

PAPER NUMBER

2612

DATE MAILED: 01/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 09/918,456 | Applicant(s) MABUCHI, KEIJI | |
| | Examiner John M. Villecco | Art Unit 2612 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 8/1/01.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3 is/are rejected.
- 7) ☒ Claim(s) 2 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 August 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>1/15/02</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 26 and 31.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to because in Figure 2 the word "PHPOTOELECTRON" appears to be misspelled. It appears that the applicant meant to use the word – PHOTOELECTRON –. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of

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the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. Figure 4 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's own admitted prior art in view of Takahashi (U.S. Patent No. 5,786,588).**

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6. Regarding *claim 1*, as discussed in the section titled “Description of the Related Art” in the applicant’s specification, on pages 1 and 2, applicant discusses a prior art unit pixel which includes a photoelectric conversion element (photodiode, 101), a transfer transistor (102), for transferring the charge to a floating node (N101), an amplifying transistor (103) for outputting the signal at the floating node to a signal line, and a reset transistor (104) for resetting the floating node (N101).

Applicant, however, fails to disclose the use of a P-MOS transistor connected to the main electrode of the reset transistor, opposite to the floating node, and a driving circuit for selectively applying a reset voltage. Takahashi, on the other hand, discloses a photoelectric conversion apparatus with an improved arrangement of a pixel output. More specifically, Takahashi discloses a P-MOS transistor (2) for each row of pixels. The P-MOS transistor is used for selectively applying a reset voltage to the wire connected to the pixels. Takahashi, however, fails to disclose why this arrangement is used. Official Notice is taken as to the fact that it is well known in the art to use P-MOS transistors over other types of transistors since they give an improved reset signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a P-MOS transistor on the reset line of each row in order to give an improved reset signal.

7. As for *claim 3*, as discussed in the section titled “Description of the Related Art” in the applicant’s specification, on pages 1 and 2, applicant discusses a prior art unit pixel which includes a photoelectric conversion element (photodiode, 101), a transfer transistor (102), for transferring the charge to a floating node (N101), an amplifying transistor (103) for outputting

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the signal at the floating node to a signal line, and a reset transistor (104) for resetting the floating node (N101).

Applicant, however, fails to disclose the use of a P-MOS transistor connected to the main electrode of the reset transistor, opposite to the floating node, and a driving circuit for selectively applying a reset voltage. Takahashi, on the other hand, discloses a photoelectric conversion apparatus with an improved arrangement of a pixel output. More specifically, Takahashi discloses a P-MOS transistor (2) for each row of pixels. The P-MOS transistor is used for selectively applying a reset voltage to the wire connected to the pixels. Takahashi, however, fails to disclose why this arrangement is used. Official Notice is taken as to the fact that it is well known in the art to use P-MOS transistors over other types of transistors since they give an improved reset signal. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a P-MOS transistor on the reset line of each row in order to give an improved reset signal.

Furthermore, neither the applicant's own admitted prior art nor Takahashi specifically discloses an optical system for focusing incoming light on to the image pickup device or signal processing circuitry for processing the signal from the image pickup device. However, Official Notice is taken as to the fact that it is well known in the art to include an optical system for focusing light onto an image pickup area and signal processing circuitry for processing the signal from an image pickup device. An optical system would focus incoming light onto the image sensor and signal processing circuitry would provide a meaningful signal to the user. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include an optical system and signal processing circuitry with the image sensor.

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Allowable Subject Matter

8. Claim 2 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 2, the primary reason for indication of allowable subject matter is that the prior art fails to teach or reasonably suggest that the channel voltage of the P-type MOS transistor is equal to 0.4V to 0.7V.

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Ackland et al. (U.S. Patent No. 6,141,050) teaches the use of a P-MOS transistor in place of an N-MOS transistor because of its usefulness in providing a quality reset signal.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306 (For either formal or informal communications intended for entry. For informal or draft communications, please label "**PROPOSED**" or "**DRAFT**")

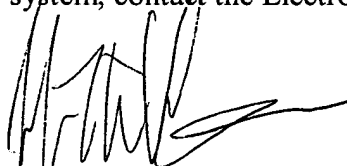
Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington VA, Sixth Floor (Receptionist).

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to John M. Villecco whose telephone number is (703) 305-1460. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John M. Villecco
December 17, 2004



WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600